Gopal **Sharma**

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Education

University of Massachusetts, Amherst *Amherst, MA, USA*

PhD in Computer Science (GPA: 3.96 / 10.0) *2016 - PRESENT*

Indian Institute of Technology (IIT), Roorkee *Roorkee, India*

B.Tech. in Electrical Engineering (GPA: 8.6 / 10.0) *2012 - 2016*

Skills

- **Programming Languages:** Python, C++, Matlab/Octave, C
- **Scientific Computing:** Pytorch, TensorFlow, Keras, Scipy, Scikit-Learn, OpenCV, Eigen, OpenMP
- **Tools:** Git, Emacs, LaTeX, Visual Studio
- **Courses:** Machine Learning, Intelligent Visual Computing, Probabilistic Graphical Models, Deep Learning, Reinforcement Learning, Mathematical Statistics, Convex Optimization.

Publications

Conference Papers

- *Search-Guided, Lightly-supervised Training of Structured Prediction Energy Networks.* Amirmohammad Rooshenas, Dongxu Zhang, **Sharma, Gopal**, Andrew McCallum In 2019 Conference on Neural Information Processing Systems (NeurIPS).
- *Learning Point Embeddings from Shape Repositories for Few-Shot Semantic Segmentation.* **Sharma, Gopal**, Kalogerakis, Evangelos, and Maji, Subhransu In 2018 International Conference on 3D Vision (3DV).
- *CSGNet: Neural Shape Parser for Constructive Solid Geometry.* **Sharma, Gopal**, Goyal, Rishabh, Liu, Difan, Kalogerakis, Evangelos, and Maji, Subhransu In 2018 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR).
- *Persistent Aerial Tracking system for UAVs.* Mueller, Matthias, **Sharma, Gopal**, Smith, Neil, and Ghanem, Bernard In 2016 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

Research Experience

Parametric Surface Fitting *Adobe, San Jose, CA*

Research Internship *May-Aug 2019*

- Worked on parametric surface fitting for 3D point cloud. Developed differentiable pipeline to fit bspline surface patches to point cloud.

Learning Visual Programs *UMass*

Research Assistantship *2018*

- The aim of the project is to induce programs using neural networks for visual softwares like Photoshops, Blender, Maya etc. We have done preliminary expriments for Constructive Solid Geometry that can generate programs of large lengths.

Exploring LSTMs for shape recognition *UMass*

Research Assistantship *Sep 2016 Feb 2017*

- The aim of the project is to exploit the sequential information present in uniformly rendered images from 3D shapes. We used LSTMs for processing sequentially rendered images for 3D shape recognition and retrieval tasks.

Activity recognition and Object tracking *KAUST*

Summer Internship *May July 2015*

- **Activity recognition:** Developed code (C++, Python and MATLAB) for activity recognition and scene understanding on the Acitivity-Net data-set, which aimed to find semantics between activity, object, and background scenes. Got experience of working with the following state-of-the-art algorithms on object detection like Fast RCNN and object proposals like Edge boxes and Bing.

- **Persistent Object tracking:** Experimentally demonstrated persistent object tracking methodology for swarm of UAVs. Developed a novel algorithm (C++ and python) to use object proposals (BING) for object tracking, based on the existing object trackers.

Word recognition in natural scene images *IIIT*

Summer Internship *May July 2016*

- Developed algorithms based on CNNs and bidirectional LSTMs to detect and recognize words in unconstrained natural scenes.